

WHAT IS CLAIMED IS:

1. A miniature air compressor , comprising:

a casing;

a cylinder secured on a top portion of the casing;

5 a motor mounted in the casing and having a shaft;

a connector secured to a free end of the shaft of the motor and a crank
pivotally connected to the connector;

a piston mounted to a free end of the crank and reciprocally movably
received in the cylinder for compressing air in the cylinder due to the crank; the
10 piston having an outer periphery airtightly abutting an inner periphery of the
cylinder and including:

a hole defined in the piston and longitudinally extending
through the piston; and

a valve secured on a top of the piston, the valve having a first
15 end secured on the top of the piston and a second end corresponding to
the hole in the piston for selectively closing the hole in the piston when
the piston is upwardly moved in the cylinder;

a partition mounted to the top portion of the casing for airtightly
closing the cylinder and forming a chamber in the cylinder;

20 a check valve mounted to the partition and extending to
communicate with the cylinder to prevent the compressed air from flowing
back into the cylinder when the piston is downward moved;

a top cover air airtightly mounted to the partition and having a cavity
defined in the top cover for receiving the check valve, thereby the compressed

air is decompressed in the cavity when passing through the check valve; and

a joint mounted to the top cover and extending to communicate with the cavity in the top cover; the joint adapted to be connected to a spray tool.

2. The miniature air compressor as claimed in claim 1, wherein the hole
5 in the piston is a sunken hole, the sunken hole having a first diameter smaller than that of a second diameter of the sunken hole, the first diameter formed and corresponding to a bottom of the piston, and the second diameter formed and corresponding to the top of the piston, the piston having a first spring received in the sunken hole and extending to the top of the piston for quickly upwardly
10 pushing the second end of the valve when the piston is downward moved.

3. The miniature air compressor as claimed in claim 1, wherein the check valve comprises multiple through holes defined in an outer periphery of the check valve and extending to an inner periphery of the check valve, and a slider reciprocally movably received in the check valve for selectively closing
15 the multiple through holes when the piston is downward moved.

4. The miniature air compressor as claimed in claim 1, wherein the piston comprises a washer attached to the first end of the valve to prevent the second end of the valve from being overly upwardly pulled when the piston is downward moved.

20 5. The miniature air compressor as claimed in claim 1, wherein the partition comprises a ring of protrusion downward extending therefrom, the ring of protrusion having an inner diameter slightly greater than an outer diameter of the cylinder such that the cylinder is longitudinally airtightly mounted to the partition within the ring of protrusion.

6. The miniature air compressor as claimed in claim 2, wherein the check valve comprises multiple through holes defined in an outer periphery of the check valve and extending to an inner periphery of the check valve, and a slider reciprocally movably received in the check valve for selectively closing
5 the multiple through holes when the piston is downward moved.

7. The miniature air compressor as claimed in claim 2, wherein the piston comprises a washer attached to the first end of the valve to prevent the second end of the valve from being overly upwardly pulled when the piston is downward moved.

10 8. The miniature air compressor as claimed in claim 2, wherein the partition comprises a ring of protrusion downward extending therefrom, the ring of protrusion having an inner diameter slightly greater than an outer diameter of the cylinder such that the cylinder is longitudinally airtightly mounted to the partition within the ring of protrusion.

15 9. The miniature air compressor as claimed in claim 3, wherein the piston comprises a washer attached to the first end of the valve to prevent the second end of the valve from being overly upwardly pulled when the piston is downward moved.

20 10. The miniature air compressor as claimed in claim 3, wherein the partition comprises a ring of protrusion downward extending therefrom, the ring of protrusion having an inner diameter slightly greater than an outer diameter of the cylinder such that the cylinder is longitudinally airtightly mounted to the partition within the ring of protrusion.

11. The miniature air compressor as claimed in claim 3, wherein the

check valve comprises a second spring mounted between a bottom of the check and the slider, the slider upwardly moved to compress the second spring and open the multiple through holes when the piston is upwardly moved, and the slider quickly downward moved to close the multiple through hole due to a
5 restitution force of the second spring when the piston is downward moved.

12. The miniature air compressor as claimed in claim 4, wherein the partition comprises a ring of protrusion downward extending therefrom, the ring of protrusion having an inner diameter slightly greater than an outer diameter of the cylinder such that the cylinder is longitudinally airtightly
10 mounted to the partition within the ring of protrusion.